

USSR

Mustafayev, R. A., Kuretin, V. V., Moscow, Teplofizika Vysokikh Temperatur, Vol 11, No 1, Jan-Feb 73, pp 144-149.

indications of two thermocouples in metal parts adjacent to the air gap is measured as a function of temperature.

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USSR

Instruments and Measurements

UDC 621.317.759:621.382

MUSTAFAYEV, Z., CAUN', I.Z., FRAYMAN, B.S.

"Method Of Measurement Of Thermal Conductivity Of Semiconductor Films"

Sb. Tr. po astron. fiz. (Collection Of Works On Agricultural Physics), 1970, Vyp 25, pp 104-110 (from RZh--Elektronika i yeye prizeneniya, No 6, June 1970, Abstract No 68510)

Translation: A method is proposed for determination of the thermal conductivity coefficient, based on measurement of the thermal conductivity of a packet of films on substrates, both in a stationary and a nonstationary regime. At first the thermal losses were determined and then the over-all thermal loss which consists of the thermal losses and the flux of the films measured. 2 ill. 6 ref. Summary.

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UDC: 616.921.5-092.9:612.015.348

MAMEDOV, A. A., Doctor of Medical Sciences, YUSUFKHANOV, A. K., Junior Scientific Associate, MUSTAFAYEVA, T. I., Graduate Student, Laboratory of Biochemistry of Viruses, Azerbaydzhanskiy Scientific Research Institute of Virology, Microbiology, and Hygiene imeni G. M. Musabekov

"Shift in the Free Amino Acid Content in the Blood Serum of White Mice During Experimental Influenza"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 1, Jan 71, pp 61-64

Abstract: The content of some 17 free amino acids in the blood sera of 100 healthy and infected white mice was determined by paper chromatography. The tests were repeated 3 to 6 times. Lysine, alanine, and valine were present in the greatest quantities (62.55, 58.3, and 44.3 mcg/ml, respectively). The content of arginine, serine, histidine, asparagine, proline, and methionine was lowest (9.98, 6.24, 5.65, 17.86, 19.9, and 16.63 mcg/ml, respectively). Content of the remaining eight amino acids was intermediate, ranging from 20.12 to 34.15 mcg/ml. In the infected mice, the content of individual amino acids was somewhat lower. In particular, there was a sharp drop in the content of essential amino acids. The quantitative change in free amino acid content contradict

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MAMEDOV, A. A., et al, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 1, Jan 71,
pp 61-64

assumptions that there is a lack of coordination in the exchange of amino acids and the other components of nitrogen metabolism. The data provide improved insight into the mechanism of protein metabolism during infectious processes and indicate potential directions for research on methods which will make it possible to normalize and stabilize this breakdown.

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USSR

UNC: 51:330.115

MUSTAFAZADE, M. A.

"Mathematical Economics Model of Optimum Specialization of Production"

Za. tekhn. progress (Toward Technical Progress), 1971, No 3, pp 13-15 (from
RZh-Kibernetika, No 12, Dec 71, Abstract No 12V869)

[No abstract]

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USSR

UDC 612.8

MUSTAFIN, A. M. and TASYBAYEVA, G. A., Kazakh State University imeni
S. M. Kirov

"An Acetylcholine Mediator in the Neuron-Glia System: Structural Changes in Schwann's Sheath in Nerve Fiber Activity Under Conditions of Choline Receptor Block"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Biologicheskaya,
No 4, Jul/Aug 73, pp 73-75

Abstract: The influence of D-tubocurarine on structural changes in Schwann's sheath in isolated frog sciatic nerve fibers and bundles was investigated under conditions of long-term rhythmic activity, by means of photomicroscopy. Darkfield interference was used to study the myelin sheath. It was found that though D-tubocurarine did not affect electrical activity of the nerve the morphological changes in the sheath observed in controls were absent. This is said to indicate that blocking the choline receptors weakens the interaction between the axial cylinder and Schwann's sheath and that acetylcholine is a mediator of neuron-glia interrelationships in nerve conductors.

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1/2 023 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--EFFECT OF GAS TEMPERATURE ON THE BREAKDOWN POTENTIAL -U-

AUTHOR-(03)-DANDARON, G.N., DAUTOV, G.YU., MUSTAFIN, G.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. MAKH. TEKH. FIZ. 1970, (1), 148-151

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GAS DISCHARGE, TUNGSTEN, ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3009/0080

STEP NO--UR/0207/70/000/001/0148/0151

CIRC ACCESSION NO--AP0138945

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--04DEC70

2/2 023

CIRC ACCESSION NO--AP0138945

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BREAKDOWN WAS STUDIED FOR HEATED AIR AT T EQUALS 500-3500DEGREESK, FOR A DISCHARGE GAP LENGTH OF DELTA EQUALS 0.1-0.5 CM AND P EQUALS 760 MM HG IN THE DISCHARGE GAP BETWEEN W ELECTRODES. THE GENERALIZED PASCHEN RULE FOR THE BREAKDOWN POTENTIAL FOR AIR IS VALID UP TO 2200DEGREESK. ABOVE THIS, THERE IS A MARKED DEVIATION FROM THIS RULE. AT 3300DEGREES FOR DELTA EQUALS 0.5 CM, THE POTENTIAL IS ONE FOURTH THAT PREDICTED BY THIS RULE.

UNCLASSIFIED

USSR

UDC 621.165-226.2

MUSTAFIN, Ch. G., NEKRASOV, V. V., Leningrad

"Improvement of Profiles of the Tail Connections with Turbine Blade Shoulders"

Keiv, Problemy Prochnosti, No 8, Aug 73, pp 81-84.

Abstract: Results are presented from experimental studies using short-base (1 mm) tensometer sensors, defining the distribution of maximum elastic stresses in tail joints with turbine blade shoulders with supporting surfaced perpendicular to the axis of symmetry of the profile. It is suggested that profiles be improved by making the supporting surfaces with skew angles greater than 0. It is demonstrated that tail joints of the improved design have maximum elastic stresses 2 to 3 times less than those currently used with 0 skew angle.

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USSR

UDC 535.417.06

BUYNOV, G. N. and MUSTAFIN, K. S.

"A Study of the Possibility of Using Single Axis Holograms for Image Multiplication"

Leningrad, Optika i Spektroskopiya, Vol 34, No 5, May 73, pp 936 - 940

Abstract: Numerous works have been published on the possibility of making multiple copies from two-axis holograms. It is also possible to make such copies from single-axis holograms, and there are advantages to this process. Particularly valuable is the lower requirement for resolving power of the film, leading ultimately to better image quality. The primary difficulty is the low signal-to-noise ratio, but this can be overcome by special measures.

In this experiment a 5 x 5 matrix of plane-convex lenses placed in the beam of a gas laser served to produce the hologram. The images were restored with monochromatic incoherent light from a mercury arc lamp. Resolving power was measured with a method described by Buynov, Lukin, and Mustafin in Volume 28 of this journal, 1970, and by reproducing images of test pattern No. 2. A resolution of 250 lines per millimeter was achieved. The limitation was primarily due to the resolving power of the hologram, since that of the optical equipment was significantly better.

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BUYNOV, G. N. et al, Leningrad, Optika i Spektroskopiya, Vol 34, No 5, May 73, pp 936 - 940

The signal-to-noise ratio can be improved by reducing the size of the light source to the minimum value possible and by placing a grid immediately in front of the film on which the multiple images are to be recorded, further reducing the amount of light allowed to strike the film between these images. A system of screens placed in front of the hologram during the restoration can almost completely eliminate the background light. If the total area of the screens is less than 10% of the total area of the hologram, the signal-to-noise ratio of the restored image can be multiplied several times without noticeable loss of quality.

A second problem is the lack of uniformity introduced by aberrations in the lens and hologram. This can be overcome by scanning in reproduction. The illuminated object and the recording film are moved in opposite directions with respect to the small apertures permitting the passage of light. A simple mechanical arrangement is enough to ensure that the direction and rate of movement are maintained in the proper relationships. This enables the entire image to be produced with the maximum optical quality, limited only by spherical aberrations and the sizes of the apertures. A similar process, in which the screens were moved, is described by Von Einighammer, in Optik, Vol 13, p 390, 1970.

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UDC 612.275.1

MUSTAFIN, K. S., YERMACHKOVA, N. N., and TURGUNBAYEV, K., Chair of Faculty Therapy, Kirgiz State Medical Institute, Division of Pathomorphology, Institute of Experimental Morphology imeni A. I. Natishvili, Academy of Sciences Georgian SSR, and Oshskaya Oblast' Hospital

"Morphological Manifestations of Heart Hypertrophy at a High Altitude"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 2, Mar/Apr 71, pp 37-40

Abstract: Morphological changes in the heart of guinea pigs kept for periods of 3-90 days at an elevation of 3,200 m above sea level were studied. On the 3d to 15th day structural and histochemical changes developed in the myocardium that were associated with hypertrophy of the tissues. These changes were accompanied by formation of necrotic sections. Necrotic changes leading to an overdevelopment of connective tissue reached a maximum on the 15th day and decreased towards the 30th day. The content of glycogen and ribonucleoproteins in the myocardium increased. While under normal conditions the content of glycogen and ribonucleoproteins in the right ventricle is much lower than in the left, adaptation to high altitude resulted in an increase of the content of the sum of these substances in the right ventricle, so that it sometimes was greater than in the left. The hypertrophy of the myocardium was most pronounced in the

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MUSTAFIN, K. S., et al., Sovetskoye Zdravookhraneniye Kirgizii, No 2, Mar/Apr 71, pp 37-40

right ventricle. The morphological changes observed in the myocardium tissue were essentially the same on the 90th as on the 45-60 th days, except that they were somewhat less pronounced in the later stage. While sojourn at the high altitude produced initial damage to the myocardium, this damage gradually decreased after the 15th day. The changes observed indicated adaptation of myocardial function to the hypoxia associated with the high altitude, but this adaptation was incomplete, because some damage to tissue remained even on the 90th day.

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Radiobiology

USSR

UDC 616.1

MUSTAFIN, K. S., Chair of Forensic Medicine, Kirghiz State Medical Institute,
and Oshskaya Oblast Hospital

"The Effect of Solar Overheating on the Cardiovascular System during Experimental Radiation Sickness"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 3, May/Jun 70, pp 10-13

Abstract: A series of experiments was conducted in which 15 rabbits were exposed to the sun (28 to 33° C) for 30 to 45 min daily for 20 days. Electrocardiographic and histological studies revealed symptoms of hypoxia and myocardial degeneration (focal swelling and basophilia of individual groups of fibers, histiocytic micronecroses, and cardiosclerotic areas). In another series of experiments, 15 additional rabbits received whole-body X-ray irradiation. Exposure to the sun immediately afterward resulted in acute disturbance of the coronary circulation and calcinosis of myocardial fibers. In a third series, 15 more rabbits were irradiated but not exposed to the sun until 7 days later, i.e., at the height of radiation sickness. Dyspnea set in quickly, and the EKG showed signs of acute coronary insufficiency.

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USSR

UDC 616-001.16

MUSTAFIN, K. S., Chair of Forensic Medicine, Kirgiz Medical Institute, and
~~Oshskaya Oblast~~ Hospital

"Heart Pathology During Acute and Chronic Overexposure to the Sun"

Frunze, Sovetskoye Zdravookhraneniye Kirgizii, No 6, Nov/Dec 70, pp 3-6

Abstract: Thirty rabbits were exposed to an initial external temperature of 29-34°C. The surface temperature of the soil was raised from 45 to 60°C for 30 to 45 minutes. Rectal temperature increase to 42.5 to 43.5°C. The electrocardiogram was then recorded and the hearts of the animals were studied histologically and histochemically. Strong sunlight brought about changes in the electrocardiograms (tachycardia, breakdown of the rhythm, and deformation of the T-wave). Morphological changes involved focal hemorrhages, with predominant localization in the subendocardial layers and dystrophy of individual muscle fibers. Chronic exposure to the heat of the sun reduces the voltage of the waves, deforms the T-wave, and shifts the S-T region below the iso-electric axis. This indicates a breakdown of metabolic processes in the heart muscle, i.e. myocardial dystrophy. Additional shifts in the electrocardiograms, particularly a prolonged coronary T-wave, indicate that

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MUSTAFIN, K. S., Sovetskoye Zdravookhraneniye Kirgizii, No 6, Nov/Dec 70,
pp 3-6

reversible shifts occur in the myocardium. The histological evidence points to micronecroses with subsequent development of cardiosclerotic foci. Morphological observations were in complete agreement with electrocardiograms.

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1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SCATTERING FUNCTION AND QUALITY OF THE IMAGE IN HOLOGRAPHY -U-
AUTHOR-(03)-BUINOV, G.N., LUKIN, A.V., MUSTAFIN, K.S. M
COUNTRY OF INFO--USSR
SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, APR. 1970, P. 762-765
DATE PUBLISHED----APR70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--HOLOGRAPHY, SINGLE MODE LASER, LIGHT SCATTERING, LIGHT
DIFFUSION, IMAGE DEGRADATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--2000/1209 STEP NO--UR/C051/70/028/000/0762/0765
CIRC ACCESSION NO--AP0124863
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 031

CIRC ACCESSION NO--AP0124863

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. APPLICATION OF A METHOD, BASED ON OBTAINING THE IMAGE OF A SHARP EDGE, TO THE DETERMINATION OF THE LINE SCATTERING FUNCTION OF THE HOLOGRAPHIC PROCESS. HOLOGRAPHS OF A RASER BLADE EDGE WERE OBTAINED WITH THE AID OF A SINGLE MODE LASER. EXCELLENT AGREEMENT BETWEEN THE THEORETICAL AND EXPERIMENTAL SCATTERING FUNCTIONS IS OBTAINED FOR COHERENT LIGHT, WHILE DIFFUSE LIGHT IS FOUND TO IMPAIR SUBSTANTIALLY BOTH THE LIMITING RESOLUTION OF THE HOLOGRAPHIC PROCESS AND THE QUALITY OF THE IMAGE.

UNCLASSIFIED

1/2 052 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--INFLUENCE OF THE NUMBER OF PORES AND THEIR DIMENSIONS ON THE
THERMAL CONDUCTIVITY OF POROUS GRAPHITES -U-
AUTHOR-(04)-LUTKOVA, A.I., MUSTAFINA, F.N., TSAREV, V.YA., KUZNETSOVA,
N.P.
COUNTRY OF INFO--USSR
SOURCE--KHIM. TVERD. TOPL. 1970, (3), 107-14
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--THERMAL CONDUCTIVITY, GRAPHITE, POROSITY, THERMAL EFFECT,
RADIATION EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3008/0855

STEP NO--UR/0467/70/000/003/0107/0114

CIRC ACCESSION NO--AP0137883

UNCLASSIFIED

2/2 052 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0137883
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECIMENS OF TWO TYPES OF GRAPHITE
WITH POROSITY CHANGING 54-78PERCENT WERE PREPD. AND THE EFFECTIVE
THERMAL COND., LAMBDA, WAS INVESTIGATED AT 500-2600DEGREEK. THE
EFFECTIVE DIAM. OF PORES WAS 50-700 MU. THE PREDOMINANT INFLUENCE OF
CONDUCTION OF HEAT ON THE LAMBDA VALUE WAS OBSD. WHILE RADIATION AND
CONVECTION INCREASED LAMBDA TO 8PERCENT MAX. AT SMALLER THAN OR EQUAL TO
2300DEGREEK.

UNCLASSIFIED

USSR

KUZNETSOVA, N. P., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 107-114

ponent of the effect heat conductivity of porous graphites is contact heat conductivity. The proportion of the radiation component and the component caused by the heat conductivity of the gas filling the pores does not exceed 8 percent of the effective heat conductivity of the material at temperatures below 2300° K. A study was made of the applicability of the Russel, Loeb and Eucken formulas for calculating the effective heat conductivity of porous graphites. Calculations of the effective heat conductivity at a temperature below 1000° K according to the Russel formula were found to give satisfactory agreement with experimental data.

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1/2 021 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--THE CONTENT OF HISTAMINE AND SEROTONIN IN THE GASTRIC WALL IN RATS
WITH INDUCED NEUROGENIC DYSTROPHY -U-
AUTHOR-(02)-GRECHISHKIN, L.L., MUSTAFINA, I.K.

COUNTRY OF INFO--USSR

SOURCE--BYULLETIN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69,
NR 3, PP 31-33
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HISTAMINE, SEROTONIN, GASTROINTESTINAL SYSTEM, RAT, DIGESTIVE
SYSTEM DISEASE, DIAGNOSTIC METHODS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1982/0855

STEP NO--UR/0219/70/069/003/0031/0033

CIRC ACCESSION NO--AP0052209

UNCLASSIFIED

2/8 021

UNCLASSIFIED

PROCESSING DATE--19SEP70

CIRC ACCESSION NO--AP0052289

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPERIMENTAL GASTRIC MUCOSAL ULCER WAS INDUCED IN RATS WITH THE AID OF IMMOBILIZATION AND ELECTRIC STIMULATION. THE CONTENT OF HISTAMINE AND SEROTONINE IN THE GASTRIC WALL WAS DETERMINED BY FLUOROMETRY. THERE WAS FOUND AN AUGMENTED LEVEL OF HISTAMINE AND SEROTONINE THREE HOURS AFTER THE STIMULUS AND THERE WAS NOTED A POSITIVE RELATION BETWEEN THE HISTAMINE CONCENTRATION AND NUMBER OF ULCEROUS LESIONS. THE AUTHORS ARE OF THE OPINION THAT ENDOGENOUS HISTAMINE AND SEROTONINE PLAY A PROMINENT ROLE IN THE DEVELOPMENT OF DESTRUCTIVE AFFECTIONS OF THE MUCOUS MEMBRANE OF THE STOMACH.

UNCLASSIFIED

1/2 007
TITLE--INTERCHANGEABILITY AND PREPARATION FOR STANDARDIZATION OF METRIC
THREADS WITH SPIRAL INSERTS -U-
AUTHOR--MUSTAYEV, R.K.
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 6, PP 19-23
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--MECHANICAL FASTENER, BIBLIOGRAPHY, TECHNICAL STANDARD,
THREADED JOINT, INTERCHANGEABILITY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/0913
CIRC ACCESSION NO--AP0124574
STEP NO--UR/0422/70/000/006/0019/0023
UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--13NOV70

272 007

CIRC ACCESSION NO--AP0124574

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPIRAL THREADED INSERTS CAN BE USED TO ADVANTAGE IN PLACE OF THREADED SLEEVES. THE AUTHOR HAS WORKED OUT A METHOD OF CALCULATION OF THE OPTIMUM DIMENSIONS FOR A SPIRAL INSERT. INTERCHANGEABILITY OF METRIC THREADS WITH THE SPIRAL INSERTS IS DISCUSSED.

UNCLASSIFIED

1/3 007 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PHOSPHORITE DEPOSIT OF TOOLSE, A GEOLOGICAL, ECONOMIC SURVEY -U-
AUTHOR--MUSTJOGI, E. *M* *factually, MUSTJOGI*
COUNTRY OF INFO--USSR (*Estonia*) *or, MUSTJOGI*
SOURCE--EESTI NSV TEAD. AKAD. TIOM., KEEM., GEOL. 1970, 19(1), 57-61
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY
TOPIC TAGS--LIMESTONE, MINERAL DEPOSIT, PHOSPHORUS COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1997/0003

STEP NO--UR/0470/70/019/001/0057/0061

CIRC ACCESSION NO--AP0119002

UNCLASSIFIED

2/3 007

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0119002

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TOOLSE DEPOSIT IS PART OF THE BALTIC PHOSPHORITE BEARING BASIN AND HAS A GEOL. STRUCTURE SIMILAR TO OTHER DEPOSITS IN THE BASIN. THE PHOSPHORITE BEARING STRATUM CONSISTS OF FINE AND MEDIUM GRAINED SLIGHTLY CEMENTED QUARTZ SANDS WITH INCLUSIONS OF FRAGMENTS AND OCCASIONALLY INTACT PHOSPHATE SHELLS. THE AV. P SUB2 O SUB5 CONTENT FOR THE ENTIRE DEPOSIT IS 9.9PERCENT. THE COMPN. OF PHOSPHORITES IS VARIABLE IN VARIOUS PARTS OF THE DEPOSIT AND DEPENDS ON THE CONCN. OF PHOSPHATE CONTG. SHELLS. A SAMPLE WITH 8.7PERCENT P SUB2 O SUB5 CONTAINED CO SUB2 1.4, F 0.8, CAO 14.3, MGO 1.0, FE SUB2 O SUB3 2.10, AL SUB2 O SUB3 0.8, AND SIO SUB2 63.1PERCENT, WHEREAS THE SHELL COMPN. WAS P SUB2 O SUB5 35-6, CAO 46-51, FE SUB2 O SUB3 2.6-3.2, MGO 0.1-0.2, CO SUB2 2.4-2.6, F 2.5-2.9, AND SIO SUB2 SMALLER THAN OR EQUAL TO 1.0PERCENT. THE DIRECT DEPENDENCE BETWEEN P SUB2 O SUB5 AND CAO CONTENTS SUGGESTED THAT THE ENTIRE CAO IS CONCD. IN THE SHELLS WITH SOME OF IT OCCURRING AS SANDSTONE CEMENT. THE MGO CONTENT, WHICH INTERFERES DURING BENEFICIATION, IS SMALL. THE TOTAL RESOURCES OF THE DEPOSIT ARE 330 MILLION TONS, I.E. SUFFICIENT FOR THE PRODUCTION OF 5-6 MILLION TONS, OF PHOSPHORITE YEARLY. DURING THE CONCN. OF PHOSPHORITE, 20-5PERCENT OF THE ORE PASSES INTO THE CONCD. THE BALANCE IS FINE GRAINED QUARTZ SANDS, CONTG. SIO SUB2 86.6-92.5 AND P SUB2 O SUB5 SMALLER THAN OR EQUAL TO 2-3PERCENT, APPLICABLE FOR THE PRODUCTION OF BOTH DENSE AND POROUS SILICATE CONCRETES. SHALES, SITUATED ABOVE THE PRODUCTIVE STRATUM, CONTAIN ORG. SUBSTANCE 9-15, PYRITE SMALLER THAN OR EQUAL TO 5, AND K SUB2 O SIMILAR TO 6PERCENT.

UNCLASSIFIED

3/3 007
CIRC ACCESSION NO--AP0119002

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--THEIR CALORIFIC VALUE IS 1150 KCAL-KG, AND THEIR YIELD
OF RESINS IS 2.3-2.5PERCENT. HIGH QUALITY CEMENT AND BUILDING LIMESTONE
CAN BE PRODUCED FROM OVERLYING CARBONATE ROCKS. FACILITY: UPR.
GEOL., TARTU, USSR.

UNCLASSIFIED

173 008 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--STRUCTURE OF ENVELOPES EJECTED BY NOVAE -U-
AUTHOR--HUSTEL, E.R., BOYARCHUK, A.A.
COUNTRY OF INFO--USSR
SOURCE--ASTROPHYS. SPACE SCI.; 6: 183-204 (FEB 1970)
DATE PUBLISHED----FEB70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--NOVA, PHOTOGRAPH, NEBULA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1133 STEP NO--NE/0000/70/006/000/0183/0204
CIRC ACCESSION NO--AP0107623
UNCLASSIFIED

2/3 008

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107623

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER CONTAINS AN ANALYSIS OF THE STRUCTURE OF ENVELOPES EJECTED DURING THE OUTBURSTS OF NOVAE. THE DATA USED FOR THIS PURPOSE WERE: (A) DIRECT PHOTOGRAPHS OF ENVELOPES AND THE PHOTOGRAPHS TAKEN WITH THE USE OF DIFFERENT COLOR FILTERS; (B) SPECTRA OF ENVELOPES. THE ENVELOPE OF DQ HER IS STUDIED MOST CAREFULLY. THE ANALYSIS OF ALL AVAILABLE DATA FOR THE ENVELOPES AROUND DQ HER AND V 603 AQL PERMITS ONE TO OUTLINE A MORPHOLOGICAL MODEL OF THESE ENVELOPES. IT APPEARS, THAT THE STRUCTURE OF BOTH THESE ENVELOPES IS APPROXIMATELY IDENTICAL AND THAT THE DIFFERENCE IN THE OBSERVED PROPERTIES OF THE PHOTOGRAPHIC IMAGES OF THE NEBULAE IS CONNECTED WITH A DIFFERENCE IN THE ORIENTATION OF THE "POLAR" AXES OF THE ENVELOPES RELATIVE TO THE LINE OF SIGHT. THE ENVELOPE EJECTED DURING THE OUTBURST OF T AUR REVEALS THE SAME PROPERTIES, WHICH ARE CHARACTERISTIC FOR THE ENVELOPES OF DQ HER AND V 603 AQL. FROM THIS IT IS CONCLUDED THAT THE DISTRIBUTION OF GASES INSIDE THE ENVELOPES OF THE MAJORITY OF NOVAE IS APPROXIMATELY OF THE SAME CHARACTER. THIS SPEAKS IN FAVOR OF THE PRESENCE OF CERTAIN FORCES AROUND MANY NOVAE, WHICH GUIDE THE MOTION OF EJECTED PLASMA ALONG SOME QUITE DEFINITE DIRECTIONS INSIDE RATHER SMALL SOLID ANGLES. IT SEEMS THAT THE ONLY CONCEIVABLE FORCES OF THIS TYPE MAY BE THE FORCES OF A MAGNETIC NATURE. THIS HYPOTHESIS FOR EXAMPLE PERMITS ONE TO EXPLAIN THE DIFFERENCE BETWEEN THE ENVELOPE OF GK PER AND THE ENVELOPES OF DQ HER, V 603 AQL, AND T AUR. COMPARING THE VELOCITY OF EXPANSION OF THE ENVELOPE OF DQ HER AND THE RATE OF CHANGE OF ITS ANGULAR SIZE, IT IS COMPUTED THAT THE DISTANCE TO DQ HER IS EQUAL TO 320 PC.

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--11SEP70

3/3 008

CIRC ACCESSION NO--AP0107623

ABSTRACT/EXTRACT--ON THE BASE OF PHOTOGRAPHS OF THE ENVELOPE OF DQ HER IT IS FOUND THAT IN 1968 THE FLUX F SUB HALPHA OF RADIATION IN THE HALPHA-LINE WAS EQUAL TO $(6 \pm 2) \times 10^{-12}$ ERGS-CM PRIME² SEC, WHEREAS THE MASS OF THE ENVELOPE WAS EQUAL TO 10×10^{-29} G AND ITS ELECTRONIC CONCENTRATION N SUBE TO 2×10^3 CM PRIME³ NEGATIVE³. SEVERAL HYPOTHESES, WHICH MAY EXPLAIN THE STRATIFICATION OF EMISSION FROM DIFFERENT ELEMENTS INSIDE THE ENVELOPE, ARE DISCUSSED.

UNCLASSIFIED

USSR

UDC 538.56:530.145

MJSTEL', YE.R., NIKANOROV, S.I., PARYGIN, V.N., FRIDMAN, G.KH.

"Spatial Electron Beam Light Modulator"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 6(12), 1972, pp 113-115

Abstract: The technical and physical principles of operation of a spatial electron-beam light modulator with a cooled KDP crystal are described. The device contains a light source, a polarizer, an analyzer, a dividing prism-cube, a copper cold conductor, and a crystal with a silver-plated rear surface which serves as an electrode (signal plate). The crystal is cooled by liquid nitrogen to a temperature close to the point of phase transition ($T_p = -151^\circ \text{C}$). A comparative analysis is made of possible regimes of information inscription. The possibility is shown of rejecting employment of a system of precise temperature stabilization in a regime of nonequilibrium inscription. The resolution and the image contrast produced by the modulator are studied, and methods of optimizing the device are shown. A number of possible applications of the device are described. 3 fig. 3 ref. Received, 10 May 1972.

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M Optics & Spectroscopy

UDC 535.5

USSR

MUSTEL', YE. R., PARYGIN, V. N.

"Metody Modulyatsii i Skanirovaniya Sveta (Methods for the Modulation and Scanning of Light)"

Moscow, "Nauka," 1970, pp 2-5

Translation: In the book are set forth methods for controlling the intensity, the frequency, the polarization, and the direction of the propagation of light. The first part deals with the physical foundations of various methods for the modulation and scanning of a laser beam. Detailed attention is given to the linear and quadratic electro-optical effects, magneto-optics, modulation in the electrical control of light absorption, and methods for the modulation of light by acoustic waves. Diagrams of light modulators in the radio-frequency range and the super-highfrequency range, based upon these methods, are presented. Brief consideration is given to various systems for the deflection of a light ray. The second part deals with the internal modulation of the emission of a gas laser that originates when the

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USSR

MUSTEL', YE. R., et al, "Nauka", 1970, pp 2-5

parameters of the gas laser are periodically changed. The differences in the modulation of laser emission with control of the active and reactive parameters of the laser medium are shown. Consideration is given to the modes of asynchronous and synchronous internal modulation and their application for purposes of the transmission of information by an optical beam. 10 tables, 118 illustrations, 360 bibliographical items.

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MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

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MUSTEL', YE. R., et al, "Nauka," 1970, pp 2-5

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TECHNICAL TRANSLATION

1007 | HISTC:HT-23-2015-72

29 April 72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION
PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV,
SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYH IZLUCHENIYEM

AUTHOR: I. A. DERUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY
IMENI T.G. SHEVCHENKO

Translated for ESTC by ACS1

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- 11412 Page -

USSR

UDC 621.382.5.017.71

BOGACHEV, V.M., MISYANECY, M.I.

"Dependence On Temperature Of The Parameters Of Equivalent Circuits For Drift Transistors"

V sb. Dokl. nauchno-tekhn. konferentsii po itogam nauchno-issled. rabot za 1968-1969 gg. Mosk. energ in-t, 1970 g. Sekts. Radiotekhnicheskaya. Podsekt. Obshch. radio-tekhniki (Report Of The Scientific-Technical Conference On The Results Of Scientific-Research Work During 1968-1969. Moscow Power Engineering Institute, 1970. Radio Engineering Section, General Radio Technology Subsection -- Collection Of Works), Moscow, 1970, pp 101-111 (from REK--Elektronika i yeye primeneniye, No 6, June 1970, Abstract No 6B202)

Translation: The paper theoretically analyzes the effect of temperature on the cut-off frequency of drift transistors, the basic parameters of equivalent circuits, and the resistance of the base. For a p-n-p type transistor, the average coefficients of diffusion are found by a solution of integral equations, making it possible to take into account the effect of a field and the instability of mobility on the parameters of the transistor. Taking account of the thermal scattering in the semiconductor, the temperature dependence is introduced of the average coefficient of diffusion at different values of the field. The magnitude of the transmission coefficient of the emitter current α_0 is determined as well as the transfer coefficient β_0 .

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USSR

BOGACHEV, V.M., et al. Dokl. nauchno-tekhn. konferentsii...Moscow, 1970, pp 101-111

and the effectiveness of the emitter γ_0 . A family of temperature curves is constructed according to computed formulas, for the coefficient of diffusion of a Ge p-n-p and Si n-p-n transistor with various factors of the field and concentrations of the impurities. The relations $B_0(T)$ and $\gamma_0(T)$ for types of transistors are found, taking account of the exponential distribution of impurities in the base. 5 ill. 2 tab. 4 ref. V.K.

2/2

USSR

UDC 911.3.616.9.576.89(479.24)

GADZHIYEV, A. T., GAFAROVA, F. G., and MUTAFAYEVA, Z. A.

"The Effect of Anthropogenic Factors on the Distribution of Disease Vectors"
(Azerbaijan SSR)

V sb. 5-ya Mezhev. zoogeogr. konferentsiya "Vliyaniye antropogen. faktorov na formir. zoogeogr. kompleksov" Ch. I. (Fifth Joint Higher Education Institution Zoogeographic Conference on the Effect of Anthropogenic Factors on the Formation of Zoogeographic Complexes. Part I — collection of works), Kazan, 1970, pp 76-78 (from RZh-36, Meditsinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.69 by Yu. Dubrovskiy)

Translation: The red-tailed Libyan jird and the fleas specific to this species have totally disappeared following the irrigation and tilling of the Shirvanskaya, Mil'skaya, and Muganskaya steppe. At the same time this rodent has become widespread in the foothills, and the fleas, which are plague vectors have followed. The water vole has infiltrated along the irrigation canals into the heart of the steppe, carrying its specific parasites, the tularemia vectors *Laelaps muris*, *Hyperlaelaps amphibius*, *Haemolaelaps glasgowi*. The forest belts planted along the canals are now infiltrated with house and field mice and their mites -- *L. agilis* and *L.*

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USSR

GADZHIYEV, A. T., et al, V sb. 5-ya Mezhyuz. zoogeogr. konferentsiya
"Vliyaniye antropogen. faktorov na formir. zoogeogr. kompleksov" Ch. 1.
(Fifth Joint Higher Education Institution Zoogeographic Conference on the
Effect of Anthropogenic Factors on the Formation of Zoogeographic Complexes.
Part I — collection of works), Kazan, 1970, pp 76-78 (from RZh-36, Medit-
sinskaya Geografiya, No 1, Jan 71, Abstract No 1.36.69 by Yu. Dubrovskiy)

algericus. The nests of birds of the sparrow family in the forest belt
contain great numbers of Ornithonyssus sylvarum, Steatonyssus viator and
Dermanyssus passerinus. The emergence of new parasite cenoses provides
the conditions for new natural foci of disease.

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USSR

UDC 541.6 + 661.718.1

NESTEROV, L. V., and MUTALAPOVA, R. I., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"Stability of Phenylphenoxyphosphonium Chlorides and Bromides"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 1, Jan 71, p 167

Abstract: The decomposition of phenylphenoxyphosphonium bromides and chlorides occurs analogously to that of iodides, their stability increasing with increasing number of phenyl substituents. Furthermore, the bromides decompose slower than the iodides, and the chlorides -- slower than the bromides. The decomposition of phenoxyphosphonium halides -- the second stage of Arbuzov reaction -- occurs by an S_N^2 mechanism.

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USSR

UDC 533.9

~~MITIN~~ R. V., PRYADKIN, K. K. ZVYAGINTSEV, A. V., Khar'kov Physicotechnical
Institute of the Academy of Sciences UkrSSR

"On the Effect of a Magnetic Field on an Electrodeless Discharge Plasma"

Moscow, Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1142-1148

Abstract: The results of an experimental study of the effect of rotation of an electrodeless high-frequency discharge plasma at high pressure in an external constant magnetic field are presented. In previous experiments by the authors the effect of a magnetic field on a stationary electrodeless high-frequency discharge in inert gases at a pressure of 0.5-2 at was investigated; the shape of the discharge observed at such pressures and sufficiently high levels of the high-frequency power under the action of the magnetic field transforms into a toroidal shape, and this toroidal plasmoid has its own magnetic properties: it rotates in a homogeneous field and pulls in when in a nonhomogeneous magnetic field. It was shown that rotation of the plasma is observed when the plasma is created by closed circular currents flowing in the plane perpendicular to the magnetic field (H-discharges) and is not observed in E-discharges (a high-frequency discharge without closed currents).

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USSR

MITIN, R. V., et al., *Teplofizika Vysokikh Temperatur*, No 6, Nov/Dec 70, pp 1142-1148

It is hypothesized that the effects observed are caused by partial rectification of the closed high-frequency currents, but the experiments described here show that it cannot explain all phenomena observed, although this one cause may play a decisive role. The nature of the dependence of the frequency of rotation of the discharge on the nature of the gas (Ne, Ar, Kr, Xe), the magnetic field strength, and the pressure (in the range 0.5-2 at) are described in detail. The reason for the rotation is explained on the basis of the theory of electrophoresis in a gas discharge plasma. It is shown that the application of this theory to this phenomenon is valid, since it is possible to explain the reason for the rise of an uncompensated force, the direction of rotation of the gas, and the nature of the dependence of the rate of rotation on pressure, magnetic field, and type of gas.

2/2

1/2 014
UNCLASSIFIED
TITLE--ULTRASOUND DIAGNOSIS OF PNEUMONIA -U- PROCESSING DATE--04DEC70
AUTHOR--(05)--BOGIN, YU.N., MUTINA, YE.S., BOGDANOV, A.V., SHIRSHOVA, T.N.,
BEDUKHINA, L.I.
COUNTRY OF INFO--USSR
SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 6, PP 123-138
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--PNEUMONIA, ULTRASOUND, DIAGNOSTIC MEDICINE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3005/1474 STEP NO--UR/0497/70/048/006/0123/0128
CIRC ACCESSION NO--AP0133410
UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133410

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE AUTHORS EVALUATED THE DIAGNOSTIC POSSIBILITIES OF THE BIOLOCATION TECHNIQUE IN ACUTE AND CHRONIC PNEUMONIA. THERE WERE 31 PATIENTS WITH ACUTE PNEUMONIA AND 55 WITH CHRONIC. PATIENTS WITH ACUTE PNEUMONIA ON THE ECHOGRAM SHOW HETEROGENOUS FOCI OF INDURATION OF THE PULMONARY TISSU WHICH DISAPPEAR UPON RECOVERY. IF PNEUMONIA IS COMPLICATED BY ACUTE PLEURISY ON THE ECHOGRAM THE LAYER OF FLUID IS REFLECTED IN THE FORM OF NONINTENSIVE HOMOGENOUS SHADOW. THE PNEUMONIC FOCUS IS WELL SEEN BEYOND THE FLUID LAYER. AN EXACERBATION OF CHRONIC PNEUMONIA IS ACCOMPANIED BY THE APPEARANCE OF HETEROGENOUS FOCI OF PULMONARY TISSUE INDURATION. FACILITY: IV KAFEDRA TERAPII I II KAFEDRA KHIRURGII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY, MOSKVA, BIOLOKATSIONNAYA LABORATORIYA NA BAZE TSENTRAL'NOY KLINICHESKOY BOL'NITSY MINISTERSTVA PUTEY SPOBSHCHENIYA, MOSKVA.

UNCLASSIFIED

USSR

UDC: 534.784

MUTNIKOV, V. N., CHISTOVICH, L. A., Institute of Physiology imeni
I. P. Pavlov, Academy of Sciences of the USSR

"Fluctuations of the Phoneme Boundary"

Moscow, Akusticheskiy Zhurnal, Vol 19, No 4, 1973, pp 571-579

Abstract: Previous studies by these authors have attempted to show that the acoustic equivalent of a stationary vowel is a loudness density curve. Experiments were done to find a procedure for analyzing the loudness density curve to decide whether a vowel belongs to the phoneme group [u, ü, ɐ, i], or to group [o, ö, e, a, æ]. The resultant experimental data supported the hypothesis that the frequency position of the absolute maximum on the loudness density curve determines choice of the phoneme group. If this hypothesis is indeed true, then it should be possible to experimentally establish the phoneme boundary by determining the frequency contour of equal loudness. In this paper the authors conducted such phoneme boundary experiments which showed that the acoustic equivalent of a vowel

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USSR

MUTNIKOV, V. N., CHISTOVICH, L. A., Akusticheskiy Zhurnal, Vol 19, No 4, pp 571-579

(curve of loudness density distribution) does not remain fixed with presentation of the same stimulus. The observed fluctuations constitute a low-frequency phenomenon, and while they may make absolute recognition of a single vowel difficult, they cannot interfere with the ability to distinguish between two different vowels presented one immediately after the other. Slow fluctuations of the frequency contour of loudness density would offer a satisfactory explanation of the known fact that vowel perception is quite accurate judging from differentiation data, while perception accuracy judging from recognition data is low.

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USSR

UDC: 621.317.8

KAZARIN, R. N., LEVINA, M. N., MUTSYANKO, Ye. P.

"Miniature Fixed Resistors"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiokomponenty (Electronic Technology. Scientific and Technical Collection, Radio Components), 1970, vyp. 1, pp 25-28 (from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V305)

Translation: The authors describe type S5-39 fixed wire-wound resistors. Their principal characteristics are given and a method is presented for potting with epoxy compound. Resumé.

1/1

USSR

UDC 681.325.3(088.8)(47)

MUTTER, V. M.

"An Analog-Digital Servo Converter"

USSR Author's Certificate No 284456, Filed 14 Jun 67, Published 19 Jan 71
(from Referativnyy Zhurnal -- Avtomatika, Telemekhanika, i Vychislitel'naya
Tekhnika, No 8, 1971, Abstract No 8B381 P)

Translation: A converter with time-pulse modulation is proposed. It contains a comparing device, digital-analog converter, reversible counter, master clock, and coincidence circuits. The converter is distinguished by the fact that it contains a time-pulse modulator and delay lines whose purpose is to increase its accuracy of response. The output of the comparing device is connected to the delay lines, the outputs of which are connected to the output of the modulator and to the input of the coincidence circuits. These circuits are connected to the complementing inputs of the flip-flops of the reversible counter. 1 illustration.

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1/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--CRITICAL DPALESCENCE IN A N, AMYL ALCOHOL, NITROMETHANE SOLUTION -U-
AUTHOR--(04)--ANISIMOV, M.A., MUTTIK, G.G., BERIDZE, D.K., SHAKHPARONOV,
M.I. *AM*
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM 1970, 44(1) 34-8
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--NITROMETHANE, ALCOHOL, LIGHT SCATTERING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1989/0497 STEP NO--UR/0076/70/044/001/0034/0038
CIRC ACCESSION NO--AP0107102
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LIGHT SCATTERING WAS STUDIED OF THE SYSTEM C SUB5 H SUB11 OHMEND SUB2 IN THE VICINITY OF THE CRIT. POINT WITH INCIDENT LIGHT OF 4050, 4360, 5460, AND 5780 ANGSTROM. THE RELATIVE SCATTERING INTENSITY AND THE DEGREE OF DEPOLARIZATION ARE STUDIED WITH 14 SCATTERING ANGLES BETWEEN 30 AND 140DEGREES. BECAUSE OF ALMOST IDENTICAL NS OF THE COMPONENTS, THE CRIT. OPALESCENCE IS NOT VERY STRONG, AND MULTIPLE SCATTERING DOES NOT INTEFERE WITH THE MEASUREMENTS. THE THERMOSTATING WAS REALIZED WITH AN ACCURACY OF PLUS OR MINUS 5 TIMES 10 PRIME NEGATIVE4 DEGREES.

UNCLASSIFIED

Veterinary Medicine

USSR

UDC 619:576.858.4:578.083

LEBEDEV, A. I., GOGOLEV, M. M., MUTUZKIN, I. I., and MUTUZKINA, Z. P., All-Union Institute of Experimental Veterinary Medicine

"Specific Resistance of Cells Induced by Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 1, 1972, pp 31-33

Abstract: Guinea pig kidney cells obtained from animals that recovered from foot-and-mouth disease and transplanted cells (sheep kidney fetal pig kidney, hamster kidney) that survived infection with different foot-and-mouth disease virus strains yielded subcultures which after 11 passages remained completely resistant to the homologous A₂₂ virus. Bioassays on laboratory animals and in tissue culture failed to reveal the presence of virus in the cells, i.e., the acquired resistance was not accompanied by the virus carrier state. The cells' resistance proved to be specific. It was manifested only to the homologous A₂₂ variant, whereas another variant of the virus, A₇ and type 0, reproduced actively; the titer did not differ from that of virus grown in the control culture. However, the cells remained sensitive to heterologous types and variants of the virus.

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USSR

UDC 616-036.882-08-06:616-002-036.1

SOBOLEVA, V. I., TOLOVA, S. V., GURVICH, N. L., SIDORA, A. K., TRUBINA, I. Ye.,
and MUTUSKINA, Ye. A., Laboratory of Experimental Physiology for Reanimation,
Academy of Medical Sciences USSR, Moscow

"Characteristics of the Course of the Restoration Period in Animals Revived by
Extracorporeal Circulation After Clinical Death"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5,
Sep/Oct 70, pp 24-27

Abstract: Forty-three adult dogs which had sustained clinical death from profuse
hemorrhage for 7 to 12 min. were revived by use of extracorporeal artificial-
circulation equipment. In nonanesthetized dogs, corneal reflexes were suppressed
for only 10 min. after the onset of high-volume rate perfusion (not less than
100 mg/kg/min). The electrical activity of the cerebral cortex was reduced at
first. For most anesthetized animals, revival could be accomplished even 12 min.
after clinical death. It was concluded that artificial blood circulation equip-
ment could be used to revive nonanesthetized dogs within 8 min. of clinical death
from hemorrhage, in some cases even within 10 min. Anesthetized animals could be
revived after 10 min. of clinical death, a fact which was attributed to moderate

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USSR

SOBOLEVA, V. I., et al, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, Vol 14, No 5, Sep/Oct 70, pp 24-27

hypothermia accompanying the anesthesia. The body temperature of the anesthetized dogs dropped to a mean of 35°C before bloodletting and to 31.9°C before artificial blood circulation was stopped. Hypoxia during the resuscitation period was much less pronounced in these dogs.

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Veterinary Medicine

USSR

UDC 619:576.858.4:578.083

LEBEDEV, A. I., GOGOLEV, M. M., MUTUZKIN, L. I., and ~~MUTUZKINA, Z. P.~~, All-Union Institute of Experimental Veterinary Medicine

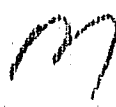
"Specific Resistance of Cells Induced by Foot-and-Mouth Disease Virus"

Moscow, Veterinariya, No 1, 1972, pp 31-33

Abstract: Guinea pig kidney cells obtained from animals that recovered from foot-and-mouth disease and transplanted cells (sheep kidney fetal pig kidney, hamster kidney) that survived infection with different foot-and-mouth disease virus strains yielded subcultures which after 11 passages remained completely resistant to the homologous A₂₂ virus. Bioassays on laboratory animals and in tissue culture failed to reveal the presence of virus in the cells, i.e., the acquired resistance was not accompanied by the virus carrier state. The cells' resistance proved to be specific. It was manifested only to the homologous A₂₂ variant, whereas another variant of the virus, A₇ and type 0, reproduced actively; the titer did not differ from that of virus grown in the control culture. However, the cells remained sensitive to heterologous types and variants of the virus.

1/1

UDC 619:576.858.4:578.083

1/2 016 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--DEPOSITION OF AEROSOL PARTICLES ON A DROP AT SMALL STOKES NUMBERS
-U-
AUTHOR--(02)-VOLOSHCHUK, V.M., MUYDINOVA, T.A. 
COUNTRY OF INFO--USSR
SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, FIZIKA ATMOSFERY I OKEANA, VOL 6 6
JAN 1970, P 45-51
DATE PUBLISHED-----70
SUBJECT AREAS--ATMOSPHERIC SCIENCES
TOPIC TAGS--AEROSOL, LIQUID DROP MODEL, REYNOLDS NUMBER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1989/1910 STEP NO--UR/0362/70/006/000/0045/0051
CIRC ACCESSION NO--AP0108240

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0108240

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL STUDY OF THE DEPOSITION OF AEROSOL PARTICLES ON A DROP AT SMALL STOKES NUMBERS AND EXAMINATION OF THE INFLUENCE OF DROP DEFORMATION ON THE ATTACHMENT PROCESS. THE ZONE OF DEPOSITION ON THE SPHERE AND THE FLUX (CAUSED BY THE ATTACHMENT) OF AEROSOL PARTICLES ONTO THE SPHERE ARE STUDIED AS FUNCTIONS OF THE FLOW REYNOLDS NUMBER AND OF THE STOKES NUMBER AT REYNOLDS NUMBERS BELOW 20 AND STOKES NUMBERS BELOW A CRITICAL VALUE. VALUES OF THE COLLISION COEFFICIENT AND OF THE DEPOSITION ZONE ARE TABULATED FOR SIX SPECIFIC EXAMPLES INVOLVING DIFFERENT FLOW PARAMETERS AND DROP CONFIGURATIONS.

UNCLASSIFIED

USSR

UDC 615.616.24-003.656.6

MUZAFAROV, A. I.

"Some Data from Roentgenologic Studies of the Thoracic Organs of Zinc Production Workers (Preliminary Report)"

Tr. NII krayev. patol. KazSSR (Works of the Scientific Research Institute of Marginal Pathology of the Kazakh SSR), 1972, No 23, pp 185-188 (from RZh--Farmakologiya. Khimioterapevticheskiye Sredstva. Toksikologiya, No 3, Mar 73, Abstract No 3.54.895)

Translation: In 23.7 percent of the fluorograms in 1969 of 705 zinc production workers, symptoms of alteration of the lung structure were detected (reticularity and grossly severe looping, emphysema) which (considering the clinical data) could be interpreted as pneumosclerosis. In 1.8 percent of the workers, commissura were discovered in the chest cavity; in 2.4 percent, pet-rificates were discovered in the radix and other parts of the lungs; in 2.7 percent, calcification of the costal cartilage. The frequency of the roentgenologic symptoms of pneumosclerosis increased with an increase in the age of the workers and the

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- 80 -

USSR

MUZAFAROV, A. I., Tr. NII krayev. patol. Kaz SSR, 1972, No 23,
pp 185-188

seniority of working in Zn production. The highest proportion of pneumosclerosis symptoms (30 percent) were detected in the melters, the loaders, the gas line workers and the furnace tenders; the less expressed symptoms (26.3 percent) were found for the crusher operators, the charge preparation workers and transport workers, and the least expressed (17.2 percent) occurred for the foremen, brigade leaders, electricians, fitters, and so on. An analysis of the fleurograms of the industrial workers in zinc production in 1970 gave analogous results. In the control group (workers at a machine building plant), the pneumosclerosis symptoms were discovered in 3.7 percent of the fleurograms. USSR, Alma-Ata, Institute of Marginal Pathology.

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USSR

UDC: 681.32.001

BELEVTSSEV, A. T., BESSHAPOSHNIKOV, Ye. A., YEFIMOV, V. P., MUZALEV, Ye. Yu.,
SEMENOV, B. A., CHIZHIK, S. P.

"Resistive Element for a Potentiometer"

USSR Author's Certificate No 293271, filed 1 Aug 69, published 11 Mar 71
(from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct
71, Abstract No 10B148 P)

Translation: This Author's Certificate introduces a resistance element for
a potentiometer. The element is made in the form of two layers applied in
sequence, one of them being a layer of rhodium. For the purpose of thermal
stabilization of the resistance, the element utilizes a heat-treated chromium
film as the rhodium sublayer. One illustration.

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UDC: 621.396.669.8

USSR

MUZALEVSKIY, V. M.

"A Device for Isolating Signals From Noisy Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275104, Class 21, filed 12 Feb 68, p 26

Abstract: This Author's Certificate introduces a device for isolating signals from noisy information. The device contains a correlator. As a distinguishing feature of the patent, the probability of errors during decoding is reduced by connecting the correlator output to a shaper which is connected through a decoupling and normalizing stage to a squaring module. The output of this module is connected in turn through a following decoupling and normalizing stage to a following squaring module in which the number of squarers n depends on the signal-to-noise ratio. The working signal is taken off from the last decoupling and normalizing stage.

1/1

Receivers and Transmitters

USSR

(UDC 621.396.669.8(088.8)

MUZALEVSKIY, V. M.

"Device for Separating Signals from Noisy Information"

USSR Author's Certificate No 275104, Filed 12 Feb 68, Published 15 Oct 70
(from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4D34P)

Translation: A signal separation device containing a correlator is proposed. In order to decrease the error probability during decoding, the correlator output is connected to the shaper which is connected via the decoupling and normalizing cascade to the squaring unit, and its output, in turn, is connected via the next decoupling and normalizing cascade to the following squaring unit, and so on. The required number of squarers depends on the signal/noise ratio. The operating signal is picked up from the last decoupling and normalizing cascade.

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UDC: 681.332.65

USSR

MUZALEVSKIY, V. M.

"Digital Filter"

USSR Authors' Certificate No 252499, Filed 19 April 1968, Published 24 February 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 19B119P, by N. V.)

Translation: A digital filter is suggested which contains a controlled cycle pulse generator; a stage for time phasing of the input or any other signal, converted to a pulse signal; and a shift register connected to its output. The filter suggested differs in that the counting outputs of the register are connected through series-connected switches changing the transmission band of the middle frequency of the filter and flip-flop switches to the inputs of the circuit which analyzes the input information, based on a diode matrix AND circuit. The signal from the output of the circuit is fed to a cycle-pulse generator controlled output signal shaper. This allows not only an increase in selectivity and speed of operation of the filter but also allows it to be switched from single-channel to multiple-channel output. One illustration.

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UDC: 621.396.67:621.317.743(088.8)

USSR

GEL'FREYKH, G. B., SPITKOVSKIY, V. M., MUZALEVSKIY, Yu. S., Main Astronomic Observatory (Pulkovo), Academy of Sciences of the USSR

"A Method of Determining the Position of the Focus in Unidirectional Antennas With an Aperture Wider Than 10^4 Wavelengths"

USSR Author's Certificate No 261486, filed 23 Oct 68, published 22 May 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11B91 P)

Translation: The proposed method, which is applicable in the centimeter and millimeter wavelength ranges, is a modification of the Hartman method. As a distinguishing feature of the method, some of the reflecting elements are taken out of the central section of the reflector; transit of a selected extraterrestrial source of radio emission through the radiation pattern of the antenna is registered for two positions of the reflector. One illustration.

N. S.

1/1

1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FLUCTUATION OF MONTHLY WOLF NUMBERS -U-
AUTHOR-(02)-MUZALEVSKIY, YU.S., ZHUKOV, L.V.
COUNTRY OF INFO--USSR
SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 3, 1970, P. 541-550
DATE PUBLISHED-----70
SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS
TOPIC TAGS--SUNSPOT, VARIATIONAL PROBLEM
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605012/C03 STEP NO--UR/0033/70/047/003/0541/0550
CIRC ACCESSION NO--AP0150262
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0150262

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT, DISCUSSION OF PROCEDURES FOR DETERMINING THE MONTHLY FLUCTUATIONS IN WOLF NUMBERS. A HISTOGRAM OF THE FLUCTUATION AMPLITUDE DISTRIBUTION IS GIVEN, SHOWING THAT THE MEAN SQUARE DEVIATIONS OF THE FLUCTUATIONS REFLECT THE CYCLIC VARIATIONS OF A WOLF NUMBER CURVE SMOOTHED BY A WHITTAKER OPERATOR. ARGUMENTS IN FAVOR OF THE SELECTION OF THIS OPERATOR FOR SMOOTHING THE CURVE ARE SET FORTH. THE CAUSES OF THE WOLF NUMBER FLUCTUATIONS ARE ANALYZED.

FACILITY: GLAVNAIA ASTRONOMICHESSKAIA OBSERVATORIIA, PULKOVO, USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPARISON OF MONTHLY OBSERVED WOLF NUMBERS SMOOTHED BY MEANS OF
THE MOVING AVERAGE OPERATOR AND THE WHITTAKER OPERATOR -U-
AUTHOR-(02)-ZHURKOV, L.V., MUZALEVSKIY, YU.S.

COUNTRY OF INFO--USSR

SOURCE--ASTRONOMICHESKII ZHURNAL, VOL. 47, NO. 2, 1970, P. 357-374

DATE PUBLISHED-----70

SUBJECT AREAS--ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--AUTOCORRELATION FUNCTION, SUNSPOT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1771

STEP NO--UR/0033/70/047/002/0357/0374

CIRC ACCESSION NO--AP0125387

UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0125387

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYSIS AIMED AT A MORE PRECISE FORMULATION OF THE PROBLEM OF ANALYZING THE MONTHLY VALUES OF THE ZURICH TIME SERIES OF WOLF NUMBERS. A METHOD OF EVALUATING THE MATHEMATICAL EXPECTATION OF THIS TIME SERIES WITH THE AID OF PROBABILITY SMOOTHING BY MEANS OF THE WHITTAKER OPERATOR IS PROPOSED. THE SPECTRAL DENSITY CURVE OF THE AUTOCORRELATION FUNCTION OF THE SEMIANNUAL VALUES OF THE SMOOTHED WOLF NUMBERS IS OBTAINED, TOGETHER WITH A HISTOGRAM OF THE DIFFERENTIAL DISTRIBUTION FUNCTION OF THE MONTHLY WOLF NUMBER VALUES. THE FREQUENCY CHARACTERISTICS OF THE WHITTAKER OPERATOR AND THE MOVING AVERAGE OPERATOR ARE COMPARED. FACILITY: GLAVNAIA ASTRONOMICHESKAIA OBSERVATORIIA, PULKOVO, USSR.

UNCLASSIFIED

USSR

UDC: 621.317.6

GEL'FRYKH, G. B., SPITKOVSKIY, V. M., MUZALEVSKIY, YU. S. (Pulkovo) Main
Astronomical Observatory, Academy of Sciences of the USSR

"A Method of Determining the Location of the Focus of Aperture Antennas with an
Opening of More than 10^4 Wavelengths"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 5,
1970, pp 45-46, patent No 261486, filed 23 Oct 68

Abstract: This Author's Certificate introduces: 1. A method of determining the location of the focus of aperture antennas with an opening of more than 10^4 wavelengths. The procedure is based on use of a modified Hartmann method, taking an extraterrestrial radio emission source as the transmitter. As a distinguishing feature of the patent, the error in determining the location of the focus is reduced by removing a precalculated number of reflecting elements from the central section of the reflector of an antenna of varying shape, and recording transit of the source of radio emission at two positions of the reflector displaced with respect to the approximately known location of the reflector focus. 2. A modification of this method in which the distinguishing feature is applicability of the procedure to aperture antennas with a continuous, sheet-frame or grid-frame reflector. The location of the focus is determined after the peripheral part of the unit has been set up and before the reflector is completely assembled.

USSR

UDC 543.42

LISIYENKO, D. G., MUZGIN, V. F., and ZOLOTAVIN, V. L.

"Spectral Analysis of the Products of Processing Titanium Magnetite Ores by the Aerosol Spark Method"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 388-395

Abstract: The authors describe a method of spectral analysis of finely dispersed powder samples of a concentrate and agglomerate by blasting their water suspensions into a high-volt spark discharge. They found that in the case of determining large concentrations of iron (50-65%) a precision of the analysis that satisfies the technological requirements can be obtained by the use of the method of conventional integral graphs. A graduated graph was constructed at the coordinates $[\Delta S_{Fe-Ca} + 0.59 \Delta S_{Fe-Ti}] - \log C_{Fe}$. They indicated theoretically and proved experimentally that the increase of the slope of the graduated graphs is explained by the existence of certain regularities in the modification of the composition of the samples rather than by the developing effect of "third elements." In the case of determining vanadium, calcium, silicon, and titanium the authors suggest using components of the sample as the elements of internal comparison, thus allowing the analytical errors in the uncontrollable variations in degree of dispersion of the samples to be 1/2

USSR

LISIYENKO, D. G., et al., Zhurnal Prikladnoy Spektroskopii, Vol 15, No 3, Sep 71, pp 388-395

substantially decreased. The necessary condition for applicability of the element of comparison with a variable concentration in the samples is the proximity of the concentration sensitivity of its lines to the lines of the elements to be analyzed. They show that this can be done by modifying the capacitance of the discharge circuit of the generator. The optimal analytical conditions are reached when $C = 0.005 \mu\text{farad}$. The graduated graphs were constructed at the coordinates $\Delta S - \log \frac{C_{\text{an}}}{C_{\text{av}}}$. The mean relative deviations of

the results of the spectral analysis from the data of chemical analysis are 0.45% for iron, 2.7% for calcium, 3.5% for silicon, 3.2% for vanadium, and 4.0% for titanium. The article contains 1 illustration, 4 tables, and 7 bibliographic entries.

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1/2 034 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--SYNTHESIS OF LEAD TELLURIDE SINGLE CRYSTALS --U-
AUTHOR--(03)-KARKLINA, M.I., ABLOVA, M.S., MUZHDAHA, Y.M.
COUNTRY OF INFO--USSR
SOURCE--IZV. SSSR. MOSCOW, NEORGANICHESKIYE MATERIALY, VOL 6, NO 5, MAY
70, PP 985-987
DATE PUBLISHED----MAY70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--LEAD COMPOUND, TELLURIDE, SINGLE CRYSTAL, HIGH PRESSURE
EFFECT, CHEMICAL SYNTHESIS, SEMICONDUCTOR MATERIAL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1536 STEP NO--UR/0363/70/006/005/0985/0987
CIRC ACCESSION NO--AP0133462
UNCLASSIFIED

2/2 034

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133462

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LEAD TELLURIDE SINGLE CRYSTALS WERE OBTAINED BY THE BRIDGEMAN METHOD. FIRST LEAD TELLURIDE WAS SYNTHESIZED BY ALLOYING THE RESPECTIVE COMPONENTS. THE DEGREE OF PURITY OF THE STARTING MATERIAL HAD NO EFFECT ON THE SINGLE CRYSTALS. PRIOR TO SYNTHESIS, THE AMPOULES WERE GRAPHITIZED TO PREVENT LEACHING OUT OF OXYGEN AND WATER. THE SYNTHESIS WAS CARRIED OUT AT 1000-1040DEGREESC FOR 15-20 MIN, FOLLOWED BY COOLING OF THE AMPOULE WITH THE OVER. THEN THE MATERIAL WAS GROUND, MIXED, AND LOADED INTO GRAPHITIZED AMPOULES TO LET THE SINGLE CRYSTALS GROW: MAXIMUM LENGTH OF THE CRYSTALS WAS 7 CM, WITH A DIAMETER OF 1 CM. THE CRYSTALS WERE CHECKED FOR ELECTRIC HOMOGENEITY BY THE THERMO EMF METHOD, HALL CONSTANT, AND BY MICROHARDNESS TESTS. FACILITY: INSTITUTE OF SEMICONDUCTORS, ACADEMY OF SCIENCES, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--WIEDEMANN, FRANZ LAW AND MECHANISM OF SCATTERING OF CURRENT CARRIERS
IN N, BISMUTH -U-
AUTHOR--(03)-KUZNETSOV, M.YE., MUZHDABA, V.M., SHALYT, S.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1236-9 (RUSS)

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--SINGLE CRYSTAL, ELASTIC SCATTERING, BISMUTH, TELLURIUM,
CRYSTAL LATTICE, ELECTON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3002/0221

STEP NO--UR/0181/70/012/004/1236/1239

CIRC ACCESSION NO--AP0127832

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127832

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY INTRODUCTION OF TE IMPURITY, SINGLE CRYSTALS OF BI WERE OBTAINED WITH MONOPOLAR ELECTRONIC CONO. THE ELECTRONIC AND LATTICE COMPONENTS OF THERMAL CONO. OF SUCH CRYSTALS WERE DETD. SEP. ANAL. OF THE WIEDEMANN-GRANZ LAW SHOWED THAT SCATTERING OF CURRENT CARRIERS HAS A SMALL BUT MEASURABLE INELASTICITY AT 50-120DEGREESK. AT LOWER TEMP., SCATTERING IS COMPLETELY ELASTIC. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

Single Crystals

USSR

M UDC 546.815:24:548.55
KARKLINA, M. I., ABLOVA, M. S., MUZHDAVA, V. M., Institute of
Semiconductors, Academy of Sciences, USSR

"Synthesis of Lead Telluride Single Crystals"

Moscow, Neorganicheskiye Materialy, Vol 6, No 5, May 70,
pp 985-987

Abstract: Lead telluride single crystals were obtained by the Bridgeman method. First lead telluride was synthesized by alloying the respective components. The degree of purity of the starting material had no effect on the single crystals. Prior to synthesis, the ampoules were graphitized to prevent leaching out of oxygen and water. The synthesis was carried out at 1000-1040°C for 15-20 min, followed by cooling of the ampoule with the oven. Then the material was ground, mixed, and loaded into graphitized ampoules to let the single crystals grow; maximum
1/2

USSR

KARKLINA, M. I., et al., Neorganicheskiye Materialy, Vol 6,
No 5, May 70, pp 985-987

length of the crystals was 7 cm, with a diameter of 1 cm. The
crystals were checked for electric homogeneity by the thermo-emf
method, Hall constant, and by microhardness tests.

2/2

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Instrumentation and Equipment

USSR

UDC 620.179.14

NUZHITSKIY, V. P., and SMIRNOV, A. S., Irkutsk Scientific-Research and Design Institute of Chemical Machinery

"Phase-Sensitive, Electromagnetic Flaw-Detection Method"

Sverdlovsk, Defetoskopiya, No 1, 1973, pp 12-20

Abstract: The Irkutsk Scientific-Research and Design Institute of Chemical Machinery developed the EMDT-2 flaw detector which uses a new, phase-sensitive, electro-induction method for registering the distortion of a variable magnetic field above an extended defect. Registration of the phase signal obtained as the result of vector summation of the transverse, tangential component of the field of two adjacent sections of a surface is a feature of the proposed method. The defect introduced into the constant or slowly varying field is considered as a magnetic dipole. The following advantages are attributed to the proposed method: a) high sensitivity to crack-type extended defects, b) good selectivity with respect to interfering factors such as local nonuniformities in the physical and mechanical properties of the controlled surface, and c) retention of sensitivity in the presence of layers of scale, rust, and product residues up to 3 mm thick. Sensitivity to defects increases with their depth and decreases as the gap increases between

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USSR

MUZHITSKIY, V. F., and SMIRNOV, A. S., Defektoskopiya, No 1, 1973, pp 12-20

the pickup and the surface of the metal. In order to maintain a constant level of sensitivity, and additional coil is needed whose electromotive force is proportional to the clearance. Original article has: two formulas, 12 figures, 13 bibliographic entries.

2/2

- 23 -

Magnesium

USSR

UDC 661.311.12.3:66.093.6

FRANTAS'YEV, N. A., SHCHEGOLEV, V. I., and MUZHZHAYEV, K. D., All-Union Aluminum-Magnesium Institute

"Dehydration of Magnesium Chloride Crystallohydrates"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 47-50

Abstract: This work was devoted to an investigation of a number of questions concerning the final dehydration of the low hydrates of magnesium chloride and the production of a raw material, suitable for electrolysis. The investigations showed that during remelting of the crystallohydrates, close in composition to dihydrate magnesium chloride, in a treated electrolyte the losses of $MgCl_2$ in producing a melt containing 40% $MgCl_2$ amounted to 33-72%, being increased with the rise of temperature. The degree of $MgCl_2$ hydrolysis during remelting amounted to 14.5-27.5%, which exceeds the magnitude of hydrolysis during the dehydration of artificial and synthetic carnallite. Hydrolysis in the case of melting a mixture of magnesium chloride crystallohydrates and the electrolyte is increased by 2-5% in comparison with the variant of remelting crystallohydrates in the treated electrolyte. From the viewpoint of raw material savings it was more profitable to produce an anhydrous product with a lower
1/2

USSR

FRANTAS'YEV, N. A., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 47-50

content of $MgCl_2$. The more economic variant of producing an anhydrous synthetic carnallite is remelting a mixture of salts in a chlorinator with chloridation of the $MgCl_2$ hydrolysis products, which makes it possible to lower consumption of raw material and electrical energy. 4 figures, 5 bibliographic references.

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- 2 -

USSR

UDC: 669.721.472(088.8)

MARKOV, G. S., GRIGOR'YEVA, Ye. A., KOSAREV, S. P., MIJZHAYLEV, K. D.,
ZUYEV, N. M., IVANOV, A. B.

"A Magnesium Electrolyzer"

USSR Author's Certificate Number 350863, Filed 28/12/70, Published 28/09/72
(Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No
8G204P).

Translation: The electrolyzer is equipped with chlorine-removing anodes and
diaphragms. In order to reduce the losses of Mg and Cl_2 and improve their
separation, a diaphragm is placed horizontally between the anodes of the
electrolytic cells, separating the zone of collection of Mg from the zone of
collection of Cl_2 .

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Magnesium

USSR

UDC 669.721

OLYUNIN, G. V., MUZHZHAVLEV, K. D., IVANYUSHKINA, L. A., and
YUZHANINOVA, T. P.

"Thermal Balance of Powerful Diaphragm-Type Magnesium Electrolyzer
With Top Mounting of Anodes"

Tsvetnyye Metally, No 3, Mar 71, pp 62-64

Abstract: In order to determine the degree of utilization of power and the nature of thermal losses in magnesium electrolyzers of different capacities with identical design, the thermal balance of an electrolyzer was measured. Recommendations are given to decrease heat losses and increase the efficiency of the electrolyzer. The most important means of decreasing the heat losses and increasing efficiency is said to be decreasing the quantity of gas exhausted at the cathode, plus reduction of losses from the anode heads and through the top cover, increasing the removal of magnesium from the electrolyzer without increasing the heat losses.

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USSR

UDC 669.721.472

MUZHZHAVLEV, K. D.

"Dependence of Magnesium Yield per Current on Composition of Electrolyte and Quality of Magnesium Chloride Raw Material"

Tr. Vses. N-i. i Proyechn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 110-118. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G197 by the author).

Translation: The influence of the composition of the electrolyte and quality of magnesium chloride raw material on Mg yield per current is studied under laboratory conditions using diaphragm-type and diaphragmless electrolyzers. With high-quality raw material, the Mg yield is almost independent of electrolyte composition; when the raw material has an increased quantity of impurities, the yield per current is higher, the higher the chlorinating capacity of the electrolyte. Specific recommendations are presented in order to increase the Mg yield per current with commercial electrolyzers. 1 fig; 3 tables; 13 biblio refs.

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Magnesium

USSR

UDC 669.721

OLYUNIN, G. V., MUZHZHAYEV, K. D., IVANYUSHKINA, L. A., and
YUZHANINOVA, T. P.

"Thermal Balance of Powerful Diaphragm-Type Magnesium Electrolyzer
With Top Mounting of Anodes"

Tsvetnyye Metally, No 3, Mar 71, pp 62-64

Abstract: In order to determine the degree of utilization of power and the nature of thermal losses in magnesium electrolyzers of different capacities with identical design, the thermal balance of an electrolyzer was measured. Recommendations are given to decrease heat losses and increase the efficiency of the electrolyzer. The most important means of decreasing the heat losses and increasing efficiency is said to be decreasing the quantity of gas exhausted at the cathode, plus reduction of losses from the anode heads and through the top cover, increasing the removal of magnesium from the electrolyzer without increasing the heat losses.

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USSR

UDC 669.721.472(088.8)

KOSAREV, S. P., MUZHZHAYEV, K. D., DRONYAYEVA, O. N.

"Method of Thermal Regulation of Magnesium Electrolyzer"

USSR Author's Certificate No 273430, Filed 8/04/68, Published 15/09/70
(Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract
No 2 G188 P)

Translation: A method is suggested for thermal regulation of a magnesium electrolyzer by changing the ohmic resistance of the electrolyte in the interelectrode gap. To increase the accuracy of regulation and decrease the dimensions of the electrolyzer, the electrodes are placed relative to each other perpendicular to the direction of the current in the inter-electrode gap. 4 figures.

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Magnesium

USSR

UDC 669.721.472(088.8)

KOSAREV, S. P., MUZHZHAYEV, K. D., KHRISTYUK, G. P., and TIMOFEYEV, V. V.,
All-Union Scientific Research, Design and Planning Institute of the
Aluminum, Magnesium and Electrode Industry

"Diaphragmless Magnesium Electrolyzer"

USSR Authors' Certificate No 275418, C. 40c, 3/02, 40c, 3/08, (C 22 d
3/02, C 32d 3/08), filed 19 Mar 69, published 2 Oct 70 (from RZh-Metallur-
giya, No 3, Mar 71, Abstract No 3 G172)

Translation: To increase metal yield in proportion to the current, the
under-surface of the bath cover is made to slope toward the electrolytic
cell, while the chlorine offtakes are placed in the cover on the side of
the collector cell.

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USSR

UDC 669.721.4(088.8)

KOSAREV, S. P., and MUZHZHAYEV, K. D., All-Union Scientific Research,
Design and Planning Institute of the Aluminum, Magnesium and Electrode
Industry

"Bath for Heating Molten Salts and Metals"

USSR Authors' Certificate No 276441, Cl. 40c, 3/02, C 22 d 3/02, filed 11
Feb 69, published 19 Oct 70 (from RZh-Metallurgiya, No 3, Mar 71,
Abstract No 3 G174 P)

Translation: For more uniform heating of the metal, decreased impregna-
tion of the hearth with the melt, and simplification of sludge removal,
the tubular elements are placed inside metal bars. The metal bars are
made of steel or cast iron.

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Instrumentation and Equipment

USSR

UDC 669.721.472(088.8)

KOSAKEY, S. P., MUZHZHAYEV, K. D., and KHRISTYUK, G. P., All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry

"Contact Head of Graphite Anode"

USSR Authors' Certificate No 272566, Cl. 40c, 3/02; 40c, 3/08, (C 22 d 3/02, C 22 d 3/08), filed 10 Jul 68, published 7 Sep 70 (from RZh-Metallurgiya, No 3, Mar 71, Abstract No 3 G173 P)

Translation: The contact head of the graphite anode of a magnesium electrolyzer, including the cast-iron lining with current-feeding rod, is unique in that, in order to improve anode hermeticity and lengthen its service life, the contact head is passed through an opening in the lining of the electrolyzer and supplied with a flange around the perimeter, by which flange the head is joint to the flange of a connecting branch mounted coaxially at the opening and attached by its under side, which has the appearance of a plate, to the body of the electrolyzer. The connecting branch is supplied with a connecting hose in order to feed gas into the anode space. One illustration.

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Magnesium

USSR

UDC 669.721.372

LEBEDEV, O. A., ANTONOV, A. N., MUZHZHAYEV, K. D., and DRONAYEVA, O. N.

"Concerning the Mechanism of Magnesium Loss in Electrolysis"

Moscow, Tsvetnyye Metally, No 10, Oct 70, pp 52-55

Abstract: An investigation was made to determine which of the two following interaction reactions taking place in the electrolysis of carnallite and magnesium chloride determines the magnesium losses: 1) The interaction of dissolved magnesium with dissolved chlorine, or 2) The interaction of Magnesium drops with gaseous chlorine. All tests were carried out with the so-called "potassium" electrolysis of the following composition (wt%): 15 $MgCl_2$, 65 KCl , 19.5 $NaCl$, and 0.5 NaF prepared from the magnesium chloride from the production of titanium and chemically pure salts. "Chemical" losses were determined according to a method described, with each test being repeated 2 or 3 times. The average results are presented in a table. Some of the tests were conducted in the electrolysis of the same "potassium" content, but with preliminary refining.

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LEBEDEV, G. A., et al, Tsvetnyye Metally, No 10, Oct 70, pp 52-55

A comparison of "chemical" magnesium losses in refined and unrefined electrolysis makes it possible to approximately evaluate the losses caused by contact emission of impurities on magnesium drops, oxidation of dissolved magnesium on the electrolysis surface, and direct burning of magnesium. The experimental procedure and apparatus are described. Thermodynamic data on magnesium-chlorine interaction reactions and magnesium loss balance are given. The highest magnesium losses apparently occur in liquid magnesium-gaseous chlorine interaction.

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INFLUENCE OF THE MERCURY CUSHION IN THE COMBINED HYDROSTATIC
SUPPORT ON GYROCOMPASS ACCURACY UNDER IRREGULAR ROLLING CON-
DITIONS

[Article by D. P. Muzlov and Yu. A. Taras, Leningrad, Priboro-
strojenye, Russian, Vol 15, No 7-1972, pp 77-79]

Effect of the mercury cushion of a gyro-
compass (GC) of the "Amur" type on the
accuracy of its indications upon random
rolling of its base is examined. It is
shown that incomplete mutual correlation
of the mercury cushion perturbations
during rolling causes the appearance of
a supplementary compass error.

The question of the hydrostatic support effect on the
behavior of gyro devices is examined in a number of publica-
tions [1], [2], [3]. Thus it is shown in [3] that a hydro-
static support practically does not introduce any errors in
the GC indications. GC's analogous in construction and para-
meters but with combined hydrostatic supports (a liquid sup-
port with centering coils and mercury cushion) have less
accuracy. This permits the assumption that the contact be-
tween the surface of the sensor (S) and the mercury cushion
is one of the reasons for the appearance of a supplementary
error in a GC with a combined hydrostatic support.

In order to examine the dynamics of the mercury cushion,
we shall make use of the results of [4], where it was shown,
analytically that with a small depth of heavy liquid oscillat-
ing in a spherical cavity, its sufficiently good mechanical
analog is a rigid spherical pendulum. Experimental investiga-
tions also confirmed the legitimacy of such a substitution in
the frequency range from zero to the natural frequency of
oscillations of the mercury cushion, approximately equal to
10 sec⁻¹. Proposing in the following to limit ourselves to
the investigation of small oscillations of the mercury cushion

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MUZLOV, D. P. and TARAN, Yu. A.

"Effect of a Mercury Cushion of Combined Hydrostatic Suspension on the Accuracy of a Gyrocompass Under Irregular Rolling of its Base"

Leningrad, Priborostroyeniye, No 2, 1972, pp 77-79

Abstract: Combined hydrostatic suspension is here defined as a fluid suspension with centering coils and a mercury cushion. In this article, the authors investigate the dynamics of the mercury cushion using the results of an earlier paper (I. V. Bogoryad, K resheniyu zadachi o kolebaniyakh zhidkosti, elastichno zapolnyayushchey polosti, variatsionnym metodom --- Solving the Problem of Oscillations in a Fluid Partially Filling a Cavity by the Variation Method --- PMM, 1962, vol 26, No 6) in which it is analytically shown that, for a shallow heavy fluid oscillating in a spherical cavity, a hard spherical pendulum is an adequate mechanical analog. This idea was also experimentally confirmed for the frequency range of 0 to 10 Hz. As an example of the application

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